

10 CFR 50.73

November 20, 2019
BW190111

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Braidwood Station, Unit 1
Renewed Facility Operating License No. NPF-72
NRC Docket No. STN 50-456

Subject: Licensee Event Report 2019-001-00 – Unit Trip on Low Steam Generator Level Due to Failure of a Controller on a Feedwater Regulating Valve

The enclosed Licensee Event Report (LER) is being submitted in accordance with 10 CFR 50.73, "Licensee Event Report System."

There are no regulatory commitments contained in this letter. Should you have any questions concerning this submittal, please contact Mr. Kevin Lueshen, Regulatory Assurance Manager, at (815) 417-2800.

Respectfully,



John Keenan
Plant Manager
Braidwood Station

Enclosure: LER 2019-001-00

cc: NRR Project Manager – Braidwood Station
Illinois Emergency Management Agency – Division of Nuclear Safety
US NRC Regional Administrator, Region III
US NRC Senior Resident Inspector (Braidwood Station)
Illinois Emergency Management Agency – Braidwood Representative



LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to InfoCollect.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. Facility Name	2. Docket Number	3. Page
Braidwood Station, Unit 1	05000456	1 OF 3

4. Title
Unit Trip on Low Steam Generator Level Due to Failure of a Controller on a Feedwater Regulating Valve

5. Event Date			6. LER Number			7. Report Date			8. Other Facilities Involved	
Month	Day	Year	Year	Sequential Number	Rev No.	Month	Day	Year	Facility Name	Docket Number
09	23	2019	2019	- 001	- 00	11	20	2019	N/A	N/A

9. Operating Mode	11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: (Check all that apply)			
1	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
10. Power Level	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
099	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.77(a)(1)
	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 73.77(a)(2)(i)
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(ii)
	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> Other (Specify in Abstract below or in NRC Form 366A)		

12. Licensee Contact for this LER		Telephone Number (Include Area Code)
Kevin Lueshen		815-417-2800

13. Complete One Line for each Component Failure Described in this Report										
Cause	System	Component	Manufacturer	Reportable to ICES	Cause	System	Component	Manufacturer	Reportable to ICES	
B	SJ	ZC	Fisher	Yes	N/A	N/A	N/A	N/A	N/A	
14. Supplemental Report Expected					15. Expected Submission Date			Month	Day	Year
<input type="checkbox"/> Yes (If yes, complete 15. Expected Submission Date) <input checked="" type="checkbox"/> No								N/A	N/A	N/A

Abstract (Limit to 1400 spaces, i.e., approximately 14 single-spaced typewritten lines)

On September 23, 2019 at 1106 hours, Braidwood Unit 1 reactor tripped due to lowering steam generator water levels following closure of the 1B steam generator feed water (FW) regulating valve.

The cause of the event was an unexpected, premature internal failure of the FW regulating valve digital valve controller (DVC). Corrective actions completed included replacement of the failed DVC for the 1B FW regulating valve, as well as the DVCs for the remaining three Unit 1 steam generator FW regulating valves. Planned corrective actions include replacing the DVCs for Unit 2 Unit steam generator FW regulating valves at the next Unit 2 refueling outage.

This event is reportable in accordance with 10 CFR 50.73(a)(2)(iv)(A) for "Any event or condition that resulted in manual or automatic actuation of any of the systems listed in paragraph (a)(2)(iv)(B) of this section, ..." Specifically, for 1) 10 CFR 50.73(a)(2)(iv)(B)(1) for the "Reactor protection system (RPS) including: reactor scram or reactor trip," and 2) 10 CFR 50.73(a)(2)(iv)(B)(6) for the "PWR auxiliary or emergency feedwater system."

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

(See NUREG-1022, R.3 for instruction and guidance for completing this form
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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Braidwood	05000456	2019	- 001	- 00

NARRATIVE**A. Plant Operating Conditions Before the Event:**

Event Date: September 23, 2019

Unit: 1 Mode: 1 Reactor Power: 99 percent

Unit 1 Reactor Coolant System [AB]: Normal operating temperature and pressure

No structures, systems or components were inoperable at the start of this event that contributed to the event.

B. Description of Event:

On September 23, 2019 at 1106 hours, Braidwood Unit 1 reactor tripped due to lowering steam generator water levels following closure of the 1B steam generator feed water (FW) [SJ] regulating valve.

Both trains of auxiliary feedwater [BA] started automatically following the reactor trip to maintain steam generator water levels. Operator response to the trip was proper and safety systems and controls performed as expected with the exception of intermediate range nuclear instrument [IG] N-36 which was identified as being undercompensated following the reactor trip. Both source range nuclear instruments were manually energized in accordance with station procedures. Steam generator power operated relief valves lifted momentarily and reseated as designed in response to the secondary transient due to the reactor trip.

This event is reportable in accordance with 10 CFR 50.73(a)(2)(iv)(A) for "Any event or condition that resulted in manual or automatic actuation of any of the systems listed in paragraph (a)(2)(iv)(B) of this section, ..." Specifically, for 1) 10 CFR 50.73(a)(2)(iv)(B)(1) for the "Reactor protection system (RPS) including: reactor scram or reactor trip," and 2) 10 CFR 50.73(a)(2)(iv)(B)(6) for the "PWR auxiliary or emergency feedwater system." This LER is being submitted in follow-up to ENS 54289 made on September 23, 2019.

C. Cause of Event

The cause of the event was an unexpected, premature internal failure of the FW regulating valve digital valve controller (DVC). Excessive plastic casting material from manufacturing was found present the DVC current-to-pressure nozzle.

D. Safety Consequences:

There were no safety consequences impacting plant or public safety as a result of this event.

The reactor trip system responded automatically due to the trip signal received. There was no loss of any function that would have prevented fulfillment of actions necessary to 1) Shutdown the reactor and maintain it in a safe shutdown condition, 2) Remove residual heat, 3) Control the release of radioactive material, or 4) Mitigate the consequences of an accident.

There was no loss of safety function for this event.

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Braidwood	05000456	2019	- 001	- 00

NARRATIVE**E. Corrective Actions:**

Completed Corrective Actions: The failed DVC for the 1B FW regulating valve was replaced, as well as the DVCs for the remaining three Unit 1 steam generator FW regulating valves.

Planned Corrective Actions: Replace the DVCs for Unit 2 Unit steam generator FW regulating valves at the next Unit 2 refueling outage.

F. Previous Occurrences:

None

G. Component Failure Data:

<u>Manufacturer</u>	<u>Nomenclature</u>	<u>Model</u>	<u>Mfg. Part Number</u>
Fisher	Digital valve controller	DVC6200	DVC6205